Comprehension as a Function of Age, Gender, Choice of Reading and Design of Stories amongst Children

A Synopsis Submitted to

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Ph.D. IN DESIGN

By

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Introduction

Among the many methods for teaching young students, reading the books is essential. National Education Policy (NEP-2020) has emphasised on the holistic development of each child. It is based on the idea that education must promote not only cognitive abilities—both "foundational capacities" like literacy and numeracy and "higher-order" cognitive abilities like thinking and problem solving—but also moral, and decision-making capabilities.

According to Oktarina (2021), raising children to the level of a fully grown person is a difficult process that has engaged leading members of society since time immemorial. According to Sarvar (2020), illustration is the most significant part of knowledge and information for a youngster, and it surely has educational value. Children learn a lot about the surrounding reality, nature, animal world, and people's lifestyles as a result of this. Thus, it can be said that the designer's approach to depicting children's books should be distinct, responsible, sincere, and straightforward. Communication with the book has an impact on the development of the child's inner world. Reading fiction teaches the youngster to assess the world's past, present, and future, creating small moral ideals.

The use of images in children's literature is critical for improving comprehension skills and the overall process of reading. However, it is critical to understand how individual elements such as gender and age influence children's drawing preferences and subsequent cognitive ability. Choice has long been regarded as a critical motivational instructional approach that encourages students to feel ownership over what they read, how they read, and when they read (Flowerday et al., 2004; Wigfeld & Guthrie, 1997). Children who believe they own their learning have higher levels of affective (e.g., enjoyment, effort) and cognitive (e.g., task performance) involvement (Ryan & Deci, 2000).

There is a lot of evidence that age effects reading attitudes and behaviour, and that kids like reading less as they get older (Topping, 2010; Clark and Osborne, 2008; Clark and Douglas 2011). However, other evidence suggests that, while young people's reading frequency decreases with age, their reading duration increases (Clark 2011). Several studies have revealed that boys enjoy reading less than girls, and that children from lower socioeconomic situations read for pleasure less than children from higher socioeconomic backgrounds (Clark and Rumbold, 2006; Clark and Douglas 2011). Children of Asian descent, according to certain research, have more favourable attitudes towards reading and read more frequently than children of White, mixed, or other races (Clark and Douglas 2011).

This research proposal aims to investigate the preferences of different types of illustrations (only text, cartoon b/w illustrations, cartoon colour illustrations, real b/w illustrations and real colour illustrations) among children with respect to age and gender and the impact of gender, age and choice to read (forced or preferential) on their comprehension skills. By gaining insights into these factors, educators, authors, and illustrators can create tailored materials that maximize children's engagement and learning outcomes. Moreover, market can be modified as one should remember that our end customers are children.

Rationale of the study

The overarching goal of early childhood care and education in regard to the NEP -2020 will be to achieve ideal results in the areas of communication and early language development, literacy, and numeracy. Therefore, it must be investigated how age, gender and choice of reading affect reader comprehension skills of children.

Illustrations are crucial, but one must know exactly what kinds of illustrations appeal to kids of different age groups and aid in the development of their all-around talents.

It is important to recognise and investigate how gender biases and stereotypes affect children's preferences and decision-making. One needs to discover any gender-related gaps and attempt to address the gender gap in literacy and educational resources by researching how gender affects illustration preferences and understanding abilities. Therefore, one needs to do research to determine how it can be helpful in creating inclusive and equitable learning settings for all kids.

As children become older, their tastes and levels of comprehension change. Educators can learn about the best teaching tactics and materials for various age groups by understanding the age-related trends in illustration preferences and their impact on comprehension abilities. This information can aid in creating curricula and teaching strategies that complement children's developmental stages and support successful learning outcomes.

Furthermore, NEP-2020 advocates that experiential learning should be implemented at all levels with exploration of the connections between various subjects as well as hands-on learning. Pedagogy should incorporate the arts and sports, and use storytelling, among others, within each subject.

Objectives of the study

The research investigation will be carried out to accomplish the following objectives:

1. To study the effect of age in terms of 4-6 years and 9-11 years on comprehension amongst children.

2. To study the effect of gender in terms of males and females on comprehension amongst children.

3. To study the effect of choice of reading stories in terms of forced choice and free choice on comprehension amongst children.

4. To study the effect of design of stories in terms of stories with no illustrations, stories with cartoons in black and white, stories with cartoons in colour, stories with real individuals in black and white, stories with real individuals in colour on comprehension amongst children.

5. To study the interactive effect of age and gender on comprehension amongst children.

6. To study the interactive effect of age and choice of reading stories on comprehension amongst children.

7. To study the interactive effect of age and design of stories on comprehension amongst children.

8. To study the interactive effect of gender and choice of reading stories on comprehension amongst children.

9. To study the interactive effect of gender and design of stories on comprehension amongst children.

10. To study the interactive effect of choice of reading stories and design of stories on comprehension amongst children.

11. To study the interactive effect of age, gender and choice of reading stories on comprehension amongst children.

12. To study the interactive effect of gender, choice of reading and design of stories on comprehension amongst children.

13. To study the interactive effect of age, gender, choice of reading stories and design of stories on comprehension amongst children.

14. To open new vistas of research.

Review of literature

Picture books, or books in which pictures complement or dominate over the text (Jalongo, 2004), are fairly common in young children's reading, as any library or bookshop's preschool department will demonstrate. Why are there so many examples in children's picture books? Illustrations for stories are claimed to aid in pulling children in, comprehension, and remembering of what is read to them. Studies of preschoolers' visual attention during storybook reading show that they are predominantly focused on the drawings rather than the print (Evans and Saint-Aubin, 2005; Justice et al., 2008).

Pictures may not increase very young children's comprehension and recall of the stories they accompany, according to research by laboratories and others (Greenhoot and Semb, 2008). It is well established that visuals help adults and school-aged children retain material that is provided orally or in writing (Levin and Lesgold, 1978; Brookshire et al., 2002; Carney and Levin, 2002).

There are various plausible explanations for this picture-enhancement effect. Memory representations formed in both modalities as a result of concurrent verbal and visual information exposure may result in duplicate retrieval pathways (Paivio, 1986). Images may also assist readers focus, grasp, or organise the material they are reading, according to study by Gernsbacher (1990) and Levin and Mayer (1993). They can also help readers remember significant elements in the text. According to the cognitive literature, although picture-facilitation effect on school-aged children and adults are extensively studied story visuals for very young children may not have the same beneficial effects as those seen for older kids (Guttman et al., 1977; Furnham et al., 2003; Pike et al., 2010).

Younger children may not understand the meaning of illustrations and hence fail to encode them or use them as retrieval cues, which explains why narrative illustrations do not aid them (Pressley & MacFadyen, 1983). In fact, in the few studies that demonstrated picture facilitation effects for preschoolers' recall of simple stimuli (Pressley et al., 1982; Digdon et al., 1985), the children were informed about the memory test and were encouraged to pay attention to the pictures. Another theory is that early toddlers lack the processing power required to focus on, encode, and connect the tale and images in memory (Dempster, 1981; Cowan et al., 2002). Mayer and Moreno (1998) proved that the availability of working memory resources influences adults' ability to integrate auditory and visual information in memory. Finally, research on symbolic development reveals that young infants have difficulty connecting and maintaining their recollection of the story's visual and verbal representations (Flavell et al., 1986; DeLoache, 2000).

Several authors have spent years researching the most efficient approaches to teach reading. At first, reading was just conceived of as a decoding process (Carrell, 1998). Dechant (1991) on the other hand, claimed that reading is about meaning and comprehension of meaning, Comprehension is the final goal and need of reading. Without it, there is no reading. Choice and interest are closely intertwined, and both are crucial factors in fostering a love of reading (Schraw et al., 1998; Clark, Phythian Sence, 2008).

Despite evidence demonstrating the benefits of choice reading, some teachers and researchers are sceptical and have suggested that children should not be allowed to choose what they read

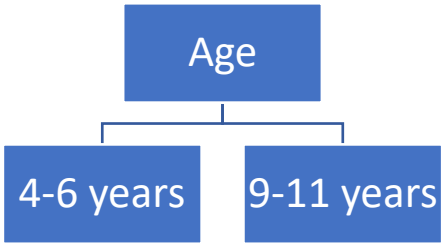
(Geoghegan; Prose; Stotsky,1991). Critics of giving students autonomy are concerned that rigour and literary merit would suffer as a result. Choice reading has been found to boost student engagement, assist students in developing a sense of identity, improve self-regulation, inspire intrinsic drive, extend students' vocabulary, and improve standardised test performance (Gallagher; Morgan and Wagner,2010).

Research method

The Study

The research work will be based on 'Field Experiments' where Comprehension is dependent variable and age, gender, choice of reading and design of stories are independent variables. Observation Method will be used.

(i)



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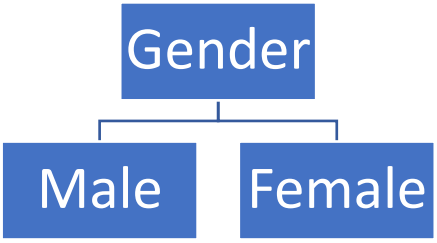

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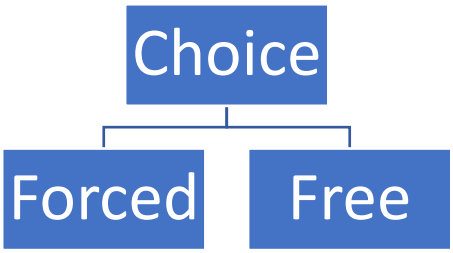

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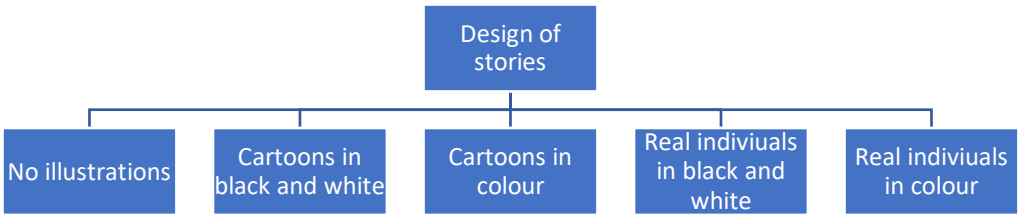
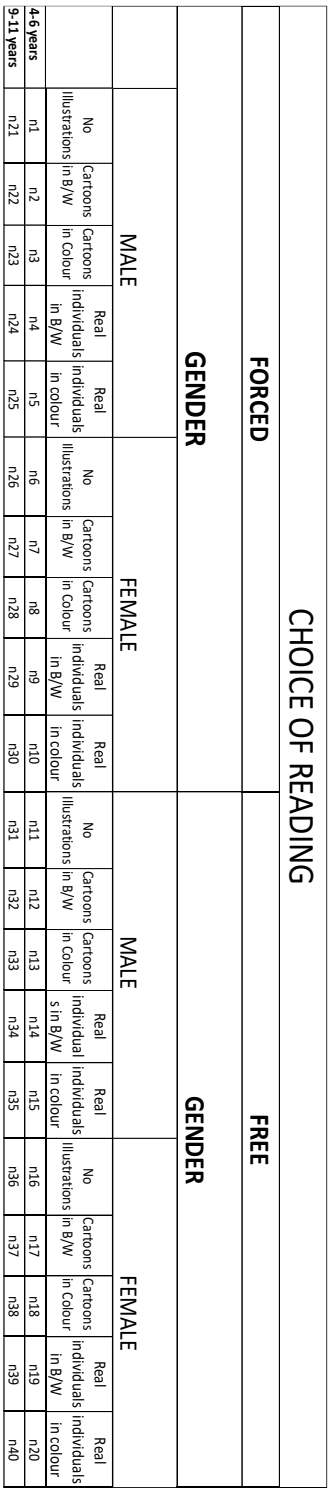


The Design

The study will be carried out with a Quadri-variate factorial design for determining the effect of independent variables on dependent variable. The research paradigm being as under:



n1 Male children of four to six years exposed to a story with no illustrations without giving them any choice to choose a particular format or design.

n2 Male children of four to six years exposed to a story with cartoons in black and white without giving them choice to choose a particular format or design.

n3 Male children of four to six years exposed to a story with cartoons in colour without giving them choice to choose a particular format or design.

n4 Male children of four to six years exposed to a story with real individuals in black and white without giving them choice to choose a particular format or design.

n5 Male children of four to six years exposed to a story with real individuals in colour without giving them choice to choose a particular format or design.

n6 Female children of four to six years exposed to a story with no illustrations without giving them any choice to choose a particular format or design.

n7 Female children of four to six years exposed to a story with cartoons in black and white without giving them choice to choose a particular format or design.

n8 Female children of four to six years exposed to a story with cartoons in colour without giving them choice to choose a particular format or design.

n9 Female children of four to six years exposed to a story with real individuals in black and white without giving them choice to choose a particular format or design.

n10 Female children of four to six years exposed to a story with real individuals in colour without giving them choice to choose a particular format or design.

n11 Male children of four to six years exposed to a story with no illustrations while giving them choice to choose a particular format or design.

n12 Male children of four to six years exposed to a story with cartoons in black and white while giving them choice to choose a particular format or design.

n13 Male children of four to six years exposed to a story with cartoons in colour while giving them choice to choose a particular format or design.

n14 Male children of four to six years exposed to a story with real individuals in black and white while giving them choice to choose a particular format or design.

n15 Male children of four to six years exposed to a story with real individuals in colour while giving them choice to choose a particular format or design.

n16 Female children of four to six years exposed to a story with no illustrations while giving them choice to choose a particular format or design.

n17 Female children of four to six years exposed to a story with cartoons in black and white while giving them choice to choose a particular format or design.

n18 Female children of four to six years exposed to a story with cartoons in colour while giving them choice to choose a particular format or design.

n19 Female children of four to six years exposed to a story with real individuals in black and white while giving them choice to choose a particular format or design.

n20 Female children of four to six years exposed to a story with real individuals in colour while giving them choice to choose a particular format or design.

n21 Male children of nine to eleven years exposed to a story with no illustrations without giving them any choice to choose a particular format or design.

n22 Male children of nine to eleven years exposed to a story with cartoons in black and white without giving them any choice to choose a particular format or design.

n23 Male children of nine to eleven years exposed to a story with cartoons in colour without giving them any choice to choose a particular format or design.

n24 Male children of nine to eleven years exposed to a story with real individuals in black and white without giving them any choice to choose a particular format or design.

n25 Male children of nine to eleven years exposed to a story with real individuals in colour without giving them any choice to choose a particular format or design.

n26 Female children of nine to eleven years exposed to a story with no illustrations without giving them any choice to choose a particular format or design.

n27 Female children of nine to eleven years exposed to a story with cartoons in black and

white without giving them any choice to choose a particular format or design.

n28 Female children of nine to eleven years exposed to a story with cartoons in colour without giving them any choice to choose a particular format or design.

n29 Female children of nine to eleven years exposed to story with real individuals in black and white without giving them any choice to choose a particular format or design.

n30 Female children of nine to eleven years exposed to story with real individuals in colour without giving them any choice to choose a particular format or design.

n31 Male children of nine to eleven years exposed to a story with no illustrations while giving them choice to choose a particular format or design.

n32 Male children of nine to eleven years exposed to a story with cartoons in black and white while giving them choice to choose a particular format or design.

n33 Male children of nine to eleven years exposed to a story with cartoons in colour while giving them choice to choose a particular format or design.

n34 Male children of nine to eleven years exposed to a story with real individuals in black and white while giving them choice to choose a particular format or design.

n35 Male children of nine to eleven years exposed to a story with real individuals in colour while giving them choice to choose a particular format or design.

n36 Female children of nine to eleven years exposed to a story with no illustrations while giving them choice to choose a particular format or design.

n37 Female children of nine to eleven years exposed to a story with cartoons in black and white while giving them choice to choose a particular format or design.

n38 Female children of nine to eleven years exposed to a story with cartoons in colour while giving them choice to choose a particular format or design.

n39 Female children of nine to eleven years exposed to a story with real individuals in black and white while giving them choice to choose a particular format or design.

n40 Female children of nine to eleven years exposed to a story with real individuals in colour while giving them choice to choose a particular format or design.

The study will have six experiments. Each experiment will be having following phases:

Experiment 1

Phase 1: The children of 4-6 years will be equally divided into twenty sub-groups (1-20).

Phase 2: Ten sub-groups will be exposed to a story suitable for their age group without giving them any choice to choose a particular format or design (1-10).

Phase 3: Ten other sub-groups will be exposed to a story suitable for their age groups while giving them choice to choose a particular format or design (11-20).

Phase 4: The comprehension of each sub-group will be tested by a standardized tool.

Experiment 2

Phase 1: The children of 9-11 years will be equally divided into twenty sub-groups (21-40).

Phase 2: Ten sub-groups will be exposed to a story suitable for their age group without giving them any choice to choose a particular format or design (21-30).

Phase 3: Ten other sub-groups will be exposed to a story suitable for their age group while giving them choice to choose a particular format or design (31-40).

Phase 4: The comprehension of each sub-group will be tested by a standardized tool.

Experiment 3

Phase 1: All male children of 4-6 years will be equally divided into ten sub-groups (1-5 and 11-15).

Phase 2: Five sub-groups will be exposed to a story suitable for their age group without giving them any choice to choose a particular format or design (1-5).

Phase 3: Five other sub-groups will be exposed to a story suitable for their age groups while giving them choice to choose a particular format or design (11-15).

Phase 4: The comprehension of each sub-group will be tested by a standardized tool.

Experiment 4

Phase 1: All female children of 4-6 years will be equally divided into ten sub-groups (6-10 and 16-20).

Phase 2: Five sub-groups will be exposed to a story suitable for their age group without giving them any choice to choose a particular format or design (6-10).

Phase 3: Five other sub-groups will be exposed to a story suitable for their age groups while giving them choice to choose a particular format or design (16-20).

Phase 4: The comprehension of each sub-group will be tested by a standardized tool.

Experiment 5

Phase 1: All male children of 9-11 years will be equally divided into ten sub-groups (21-25 and 31-35).

Phase 2: Five sub-groups will be exposed to a story suitable for their age group without giving them choice to choose a particular format or design (21-25).

Phase 3: Five other sub-groups will be exposed to a story suitable for their age group while giving them choice to choose a particular format or design (31-35).

Phase 4: The comprehension of each sub-group will be tested by a standardized tool.

Experiment 6

Phase 1: All female children of 9-11 years will be equally divided into ten sub-groups (26 -30 and 36-40).

Phase 2: Five sub-groups will be exposed to a story suitable for their age group without giving them choice to choose a particular format or design (26-30).

Phase 3: Five other sub-groups will be exposed to a story suitable for their age group while giving them choice to choose a particular format or design (36-40).

Phase 4: The comprehension of each sub -group will be tested by a standardized tool.

The extraneous variables of background, education of parents, income of parents and other such variables will be controlled by randomization and elimination.

The Sample

CHOICE OF READING																	
FORCED								FREE									
GENDER								GENDER									
	MALE					FEMALE				MALE					FEMALE		
	No Illustrations	Cartoons in B/W	Cartoons in Colour	Real individuals in B/W	Real individuals in colour	No Illustrations	Cartoons in B/W	Cartoons in Colour	Real individuals in B/W	Real individuals in colour	No Illustrations	Cartoons in B/W	Cartoons in Colour	Real individuals in B/W	Real individuals in colour	No Illustrations	Cartoons in B/W	Cartoons in Colour	Real individuals in B/W	Real individuals in colour
4-6 years	$n_{1=10}$	$n_{2=10}$	$n_{3=10}$	$n_{4=10}$	$n_{5=10}$	$n_{6=10}$	$n_{7=10}$	$n_{8=10}$	$n_{9=10}$	$n_{10=10}$	$n_{11=10}$	$n_{12=10}$	$n_{13=10}$	$n_{14=10}$	$n_{15=10}$	$n_{16=10}$	$n_{17=10}$	$n_{18=10}$	$n_{19=10}$	$n_{20=10}$
9-11 years	$n_{21=10}$	$n_{22=10}$	$n_{23=10}$	$n_{24=10}$	$n_{25=10}$	$n_{26=10}$	$n_{27=10}$	$n_{28=10}$	$n_{29=10}$	$n_{30=10}$	$n_{31=10}$	$n_{32=10}$	$n_{33=10}$	$n_{34=10}$	$n_{35=10}$	$n_{36=10}$	$n_{37=10}$	$n_{38=10}$	$n_{39=10}$	$n_{40=10}$

A total of 400 children will be participating in the study. Males (200) and Females (200) in the age groups of 4-6 years and 9-11 years. 200 children will be exposed to stories without giving them any choice to choose from five designs. Similarly, 200 children will be exposed to stories while giving them choice to choose from five designs.

The Tools

(i) Tools for data collection

Two stories will be developed for respondents of this study. One story will be focused at the children of 4-6 years age group, and second story will be focused at the age group of 9-11 years. Each story will be presented in five different designs, as given below:

1. Stories without illustrations
2. Stories with cartoons in black and white
3. Stories with cartoons in colour
4. Stories with real individuals in black and white
5. Stories with real individuals in colour

The stories will be specifically designed for the study to control storyline, characters, setting, language complexity, or thematic elements. Creating original stories tailored for a child of a particular age group will eliminate any possibility of past exposure. The suitability of each story will be established for a particular age group by taking the opinions of at least ten teachers formally dealing with each age group. Each story will be having a set of five questions at the end to determine the level of comprehension of the children. The experiments will be performed under close supervision of the researcher submitting this proposal to ensure clear understanding of the instructions and completion of the task by the children. This will also control the effect of experimenter bias and other associated additional variables. The exposure to stories will be restricted to one child at a time.

A pilot study will be conducted to test the stories, including set of questions, on five children of each age group to validate the stories and also determine the time required for exposure of the stories to the subjects.

(ii) Tools for data analysis

Appropriate statistical tests will be administered to analyse the data for arriving at the results of the study.

Possible outcomes

The study is expected to reveal the orientation of male and female children of two age groups falling in early and later childhood. It will subscribe to the understanding about the choice of children in terms of various designs of stories under the conditions of forced and free choice.

The outcomes of the study will be useful for the academicians working in the area of pedagogy. The teachers and parents will also be facilitated in understanding the behaviour of children in a particular setting. This study is likely to become a foundation for further research to examine the anatomy of comprehension in the case of children.

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Chapter Outline

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Chapter 7: Implications

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Appendices